



USDA Foreign Agricultural Service & National Geospatial-Intelligence Agency

Operational Agricultural Monitoring Project:

United States Department of Agriculture (USDA)

Foreign Agricultural Service (FAS)

Office of Global Analysis (OGA)

International Production Assessment Division (IPAD)

Presenter:

Dr. Shawana P. Johnson

Global Marketing Insights, Inc.

USDA IPAD Special Projects

& Commercial Vendor Liaison

JACIE, March 2010



Agenda



- **Inter-Agency Description [why, when and who]**
- **Project Description [what and how]**
- **Results**
- **Inter-Agency Benefits**

Why Inter-Agency Cooperation?

- The federal budget's structural imbalance affects the entire national security community, not just DOD. As difficult decisions are made about national priorities, all U.S. national security agencies will need to strike an affordable balance between investments in current missions and investments in new capabilities to meet future challenges. Given the complexities of the security environment, they will also need to build stronger partnerships and improve their capability to collaborate on solutions to address interrelated conventional and emerging threats that transcend the scope and authority of any one agency.*

*Gene Dodaro, Acting Comptroller General, GAO, remarks at National Defense University, Jan. 6, 2010



Why Would NGA choose USDA?

- **History**
- **Expertise**
- **Ease of Access to IPAD Expertise providing:**
 - Commercial Data
 - Expert Multi Spectral Imagery GIS Analysts
 - Largest Multi-Spectral Archive in the World (SIA)
 - Training and Sound Methodology

Inter-Agency Project Responsibilities

- NGA provides high spatial resolution commercial satellite imagery to FAS.
- NGA provides funding to FAS so that FAS can purchase medium resolution commercial satellite imagery.
- State provides funding to FAS so that FAS can provide remote sensing analysis.
- NASA provides access to low resolution satellite imagery (NASA satellites Terra and Aqua and the MODIS sensor).



USDA FAS/IPAD



Mission:

Target, collect, analyze, and disseminate timely, accurate, objective, useful and cost-effective assessments of agricultural conditions affecting world security and forecast agricultural production estimates.

Purpose:

Provide unbiased commodity estimates and forecasts to create a competitive edge for U.S. producers in world markets.

Provide an early warning agricultural impacts to help prevent food shortages and instability in regions.

Responsibilities:

Assess global crop conditions.

Estimate area, yield, and production of grains, oilseeds, and cotton.

The estimates are published monthly in the World Agricultural Production report and are available in FAS Production Supply and Distribution on-line database.

<http://www.fas.usda.gov/psdonline/psdHome.aspx>



Operational Agricultural Monitoring Project Phases



- **Phase 1: Dec. 2007 to Sept. 2008**
 - Iraq (weekly crop condition reports)
- **Phase 2: Dec. 2008 to Sept. 2009****
 - Iraq (weekly)
 - Iran, Syria, and Afghanistan (monthly crop condition reports)
- **Phase 3: Dec. 2009 to Sept. 2010**
 - Iraq, Iran, Syria, and Pakistan (monthly crop condition reports)
 - Afghanistan (monthly crop condition reports and weekly winter weather updates)
- **Reports distributed to Office of Agricultural Affairs (OAA) Baghdad, Kabul, and Islamabad**
 - Email distribution to OAA, NGA, CENTCOM, and others
 - Reports are posted on GEOINT Online
 - <https://www.geoint-online.net/>

**** Memorandum of Agreement between NGA and FAS, July 14, 2009**



USDA FAS/IPAD



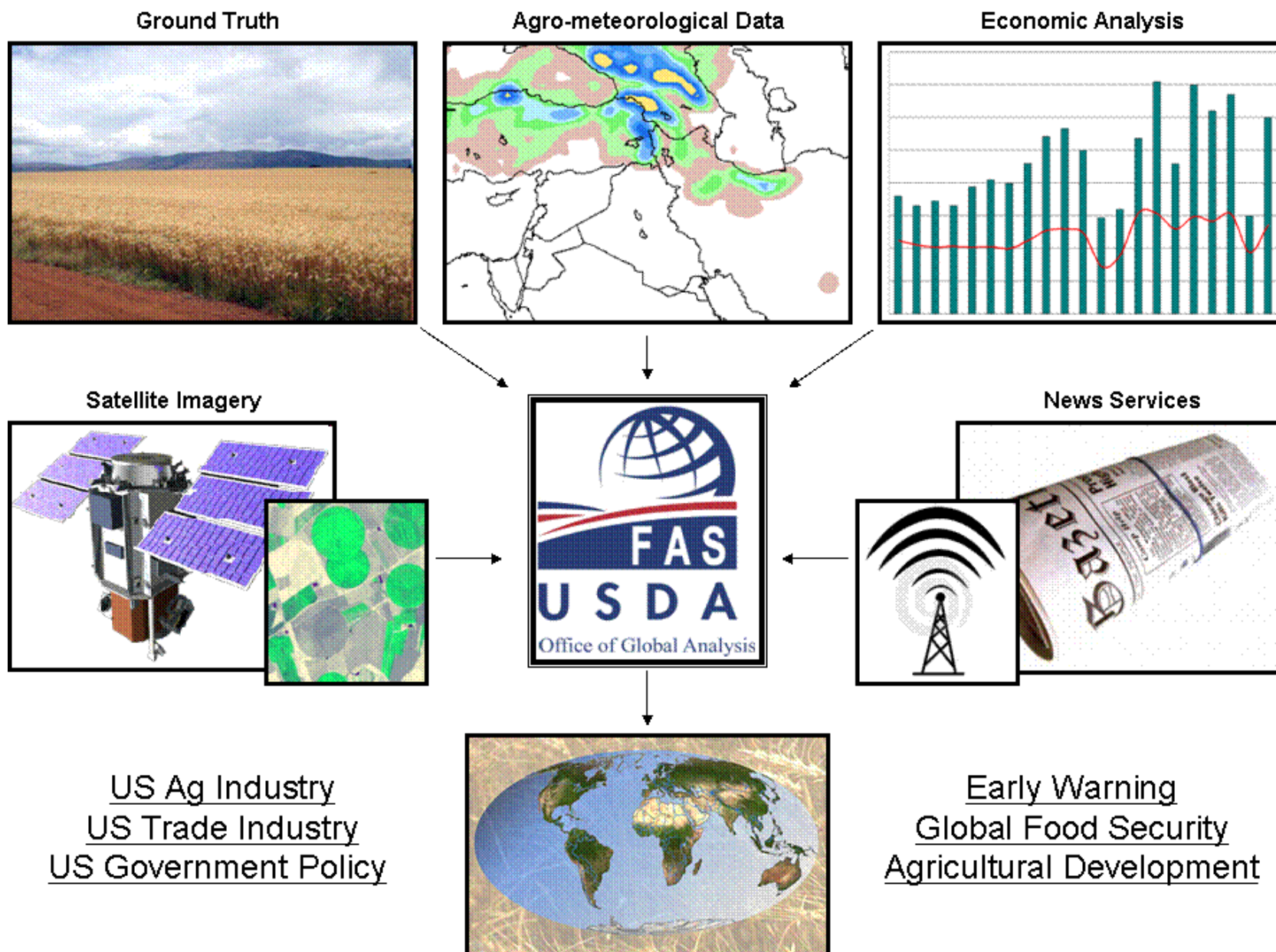
Methodology: Convergence of evidence

USDA/FAS integrates multiple datasets through convergence of evidence methodology and produces a point estimate for crop production.

- Crop production estimate is a key component of agricultural supply and distribution analysis.
- USDA produces the official US government estimate of agricultural supply and distribution which is used in food aid assessments.
- Estimates are updated monthly.

USDA/FAS Office of Global Analysis

Methodology: Convergence of evidence

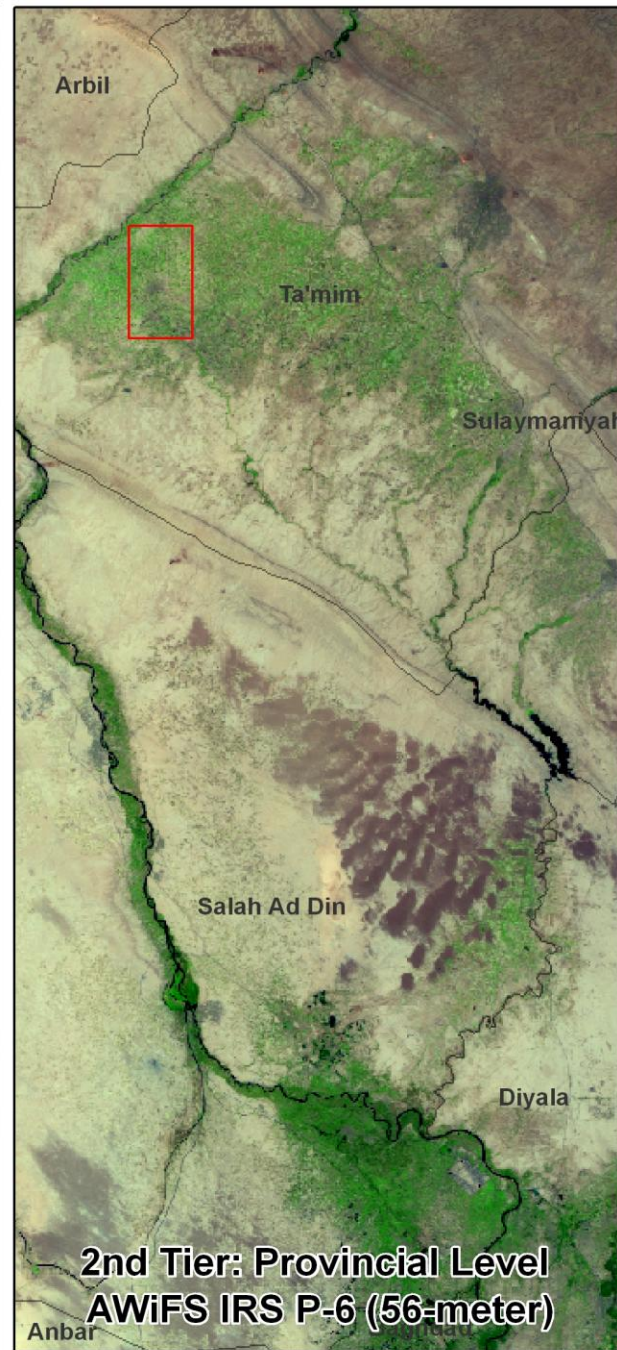
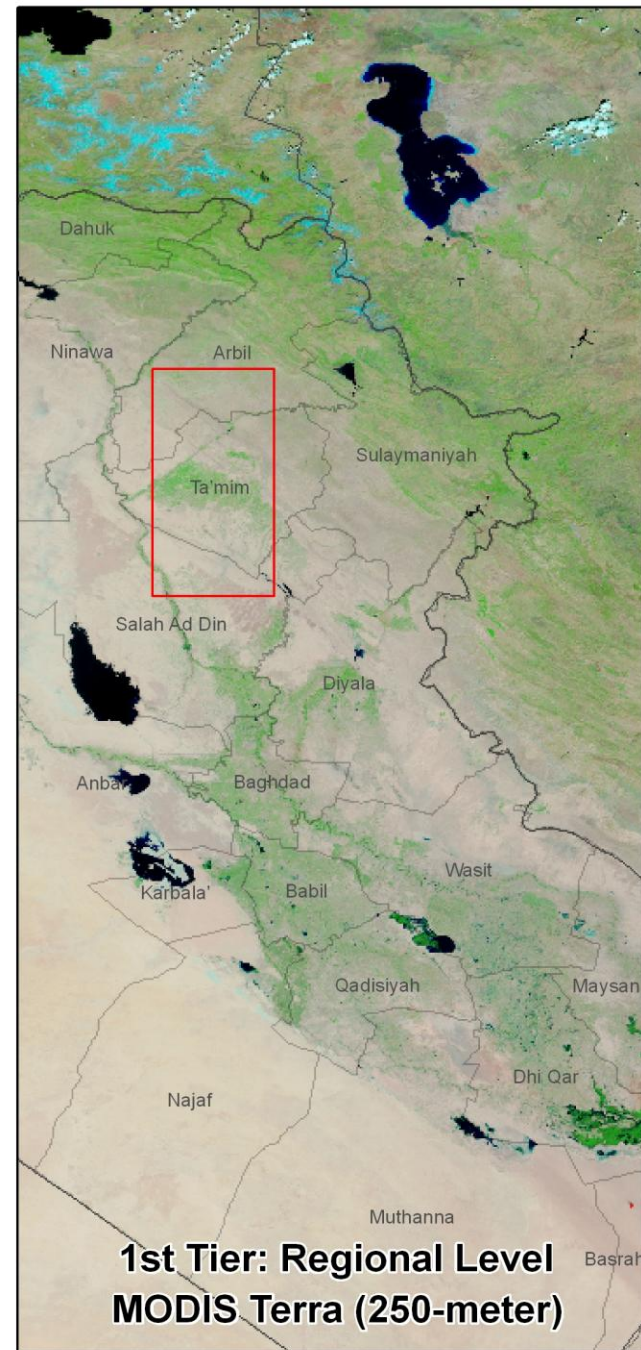


Benefits and Challenges of Using Satellite Imagery

Spatial Resolution	Satellite/ Sensor	BENEFITS	CHALLENGES
LOW: 250 to 1000 meters	MODIS SPOT- Vegetation	Multiple year data sets, Daily revisit, Regional view	Can't see agricultural fields
MEDIUM: 56 meters	AWIFS	Provincial-wide view, Revisit ~ 6 days	No time-series data
HIGH: 2.4 meters	QUICKBIRD	Validation of field and crop identification	Small amount of geographical coverage

Three-tier agricultural monitoring uses multiple sensors. Rapid data delivery allows for in-season data integration.

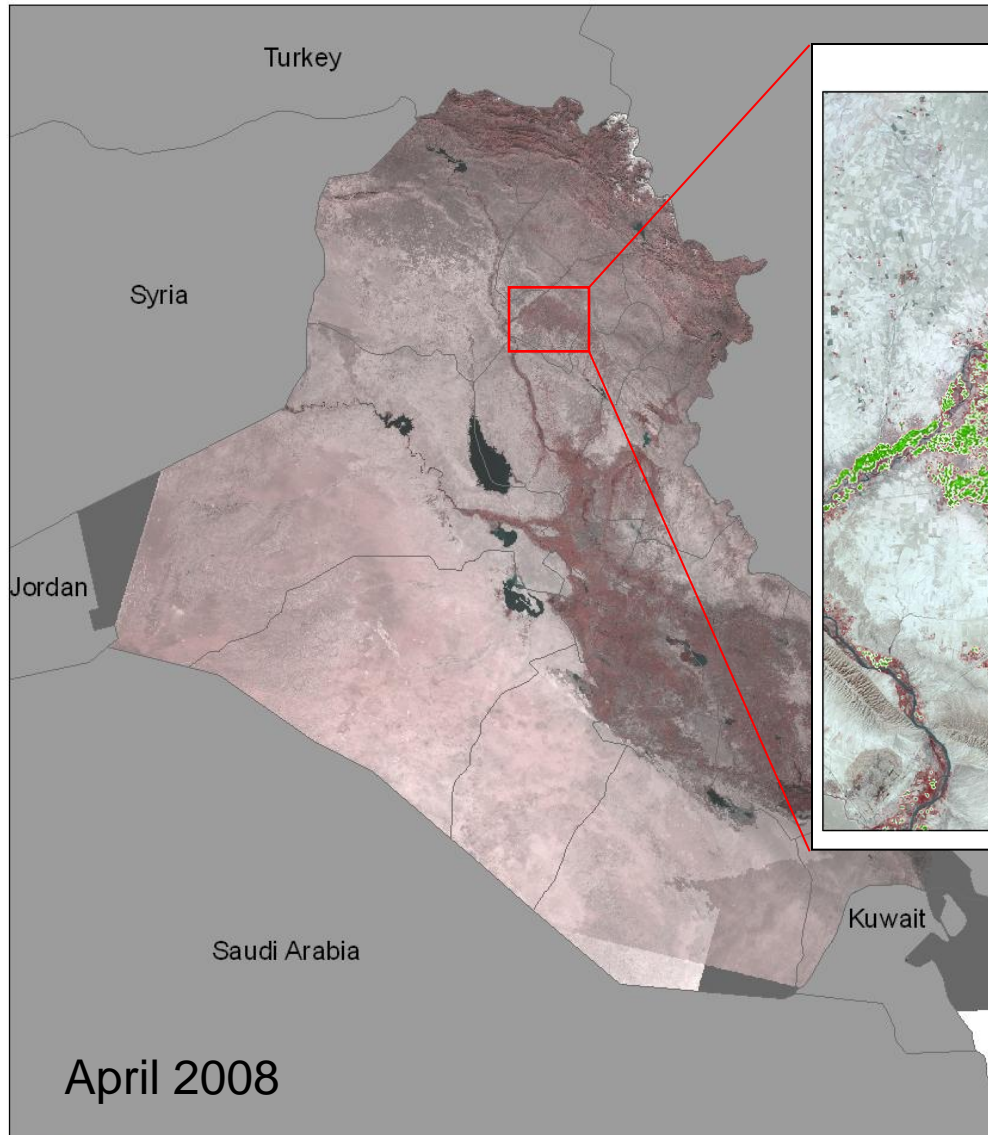
Three Tier Agricultural Monitoring: Regional to Local Scale



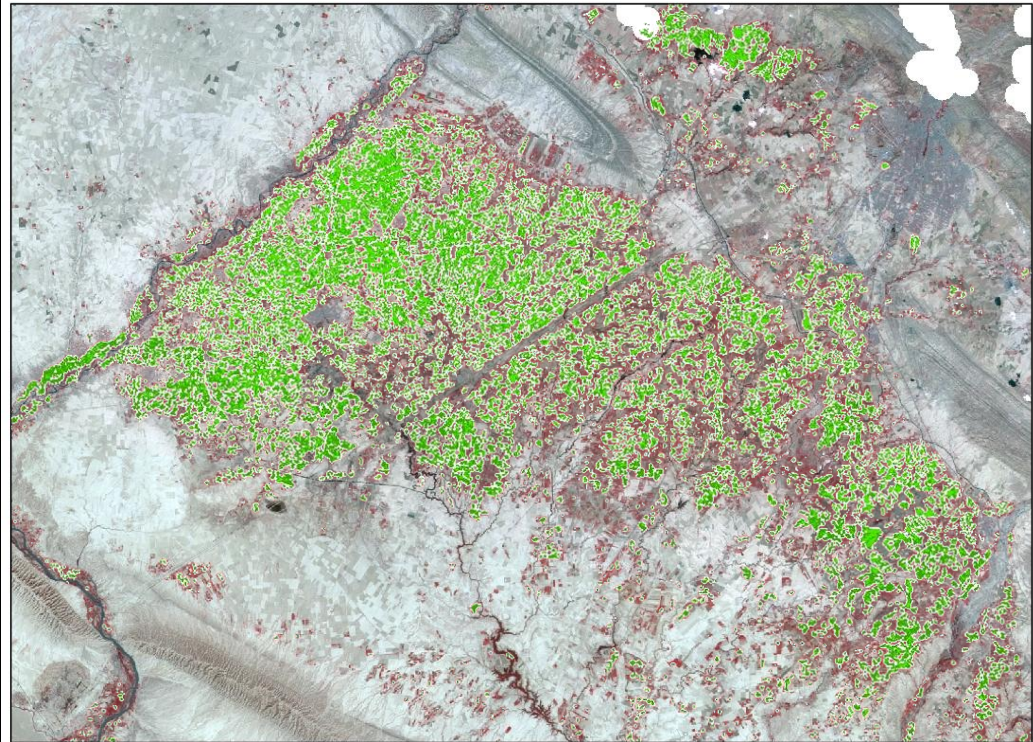


Production Statistics: Area

GDA Corp: SASR Mosaic



GDA Corp: Scene-based Dominant Crop (SBDC)



**GDA Corp. Scene-based
Dominant Crop (SBDC) mask**

April 2008

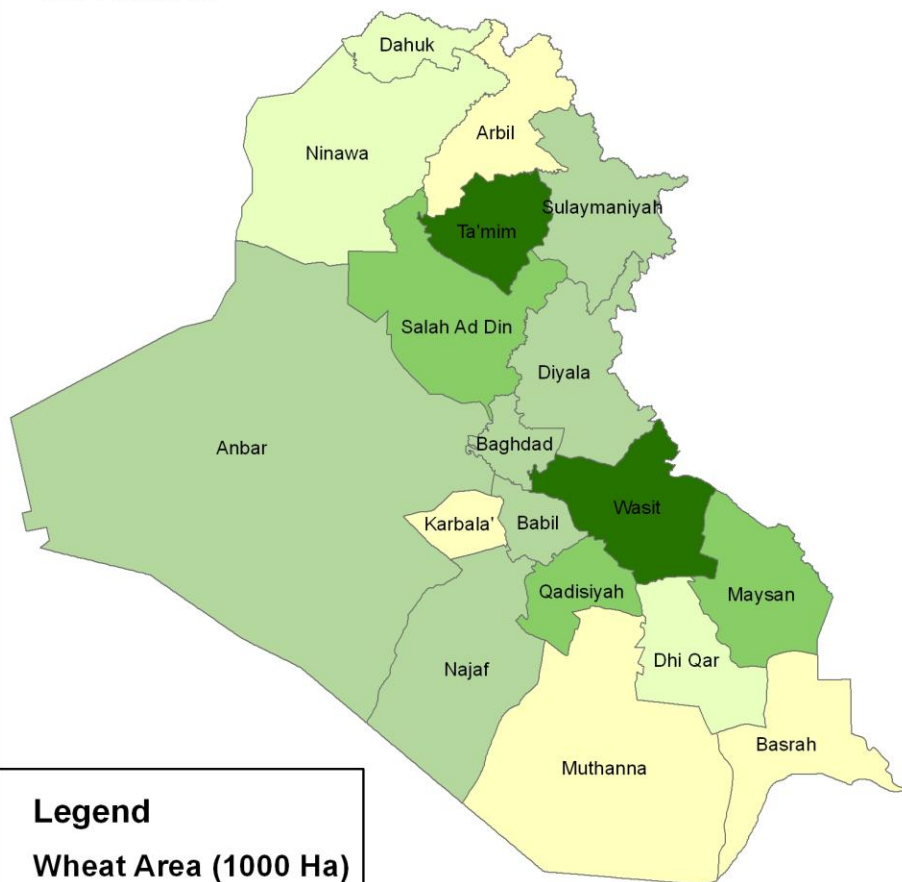


Data Source: AWIFS IRS P-6
Data provided by: National Geospatial Intelligence Agency
Supporting: USDA/FAS/OGA
International Production Assessment Division



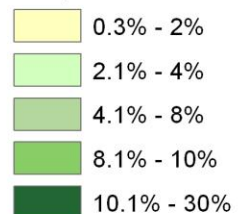
Winter Wheat Area: MY 2008/09 vs. 5-Year Average

MY 2008/09

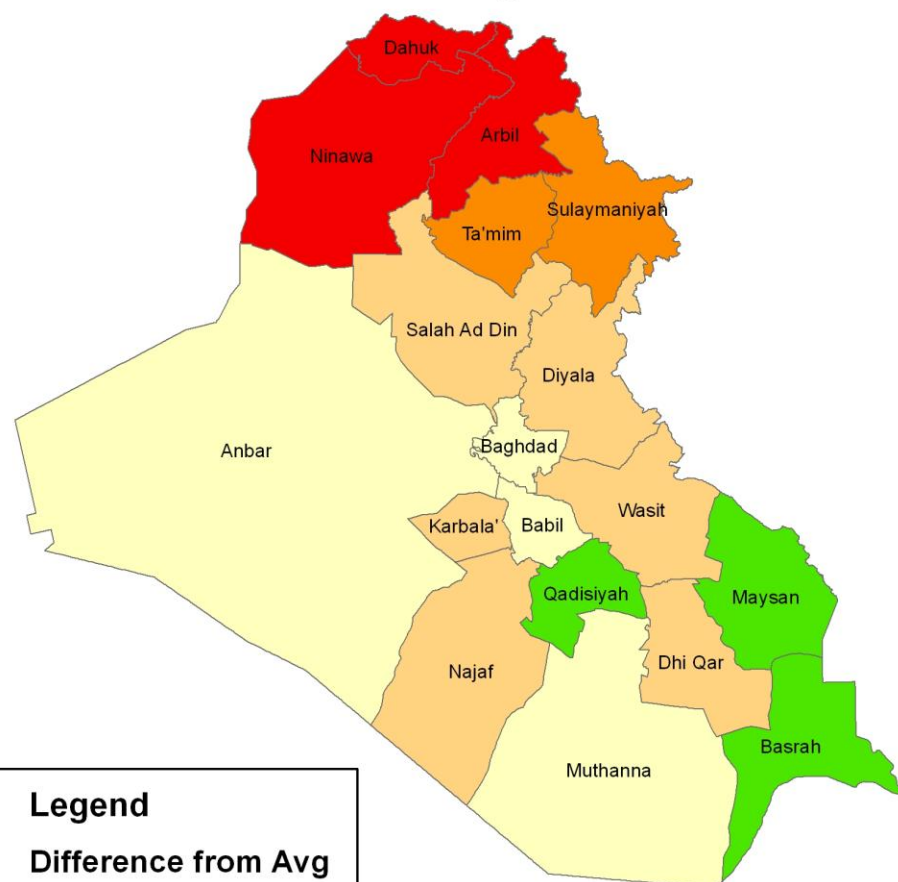


Legend

Wheat Area (1000 Ha) Proportion of Total

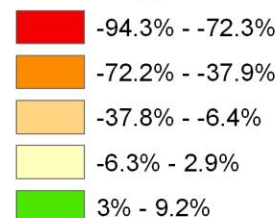


Difference from 5-Year Average

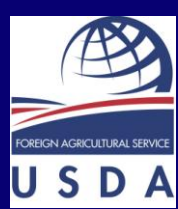


Legend

Difference from Avg Percentage



* Note: Ninawa typically produces up to 30% of the national total. Ninawa was 94% below average production for MY 2008/09.



Inter-Agency Cooperation Results



- **Support to FAS/Baghdad in their briefings to Iraq government Ministries.**
 - Estimates provided to FAS/Baghdad in early 2008 at the national and provincial level.
- **Crop production estimate for Iraq at national level released in May 2008 (official USDA release).**
 - Estimate *within 1%* of first Iraq government estimate which was released by Iraqi Ministry of Agriculture ten months after USDA's.
- **Provincial estimates for Iraq used as input into drought mitigation plans.**
- **Additional (Unknown to USDA) NGA Uses.**

Inter-Agency Project Factors

- **Do benefits outweigh efforts?**
YES, YES, YES
 - Bureaucratic Costs
 - Accountability Factors
 - Technology Factors
 - Communication and Trust Factors



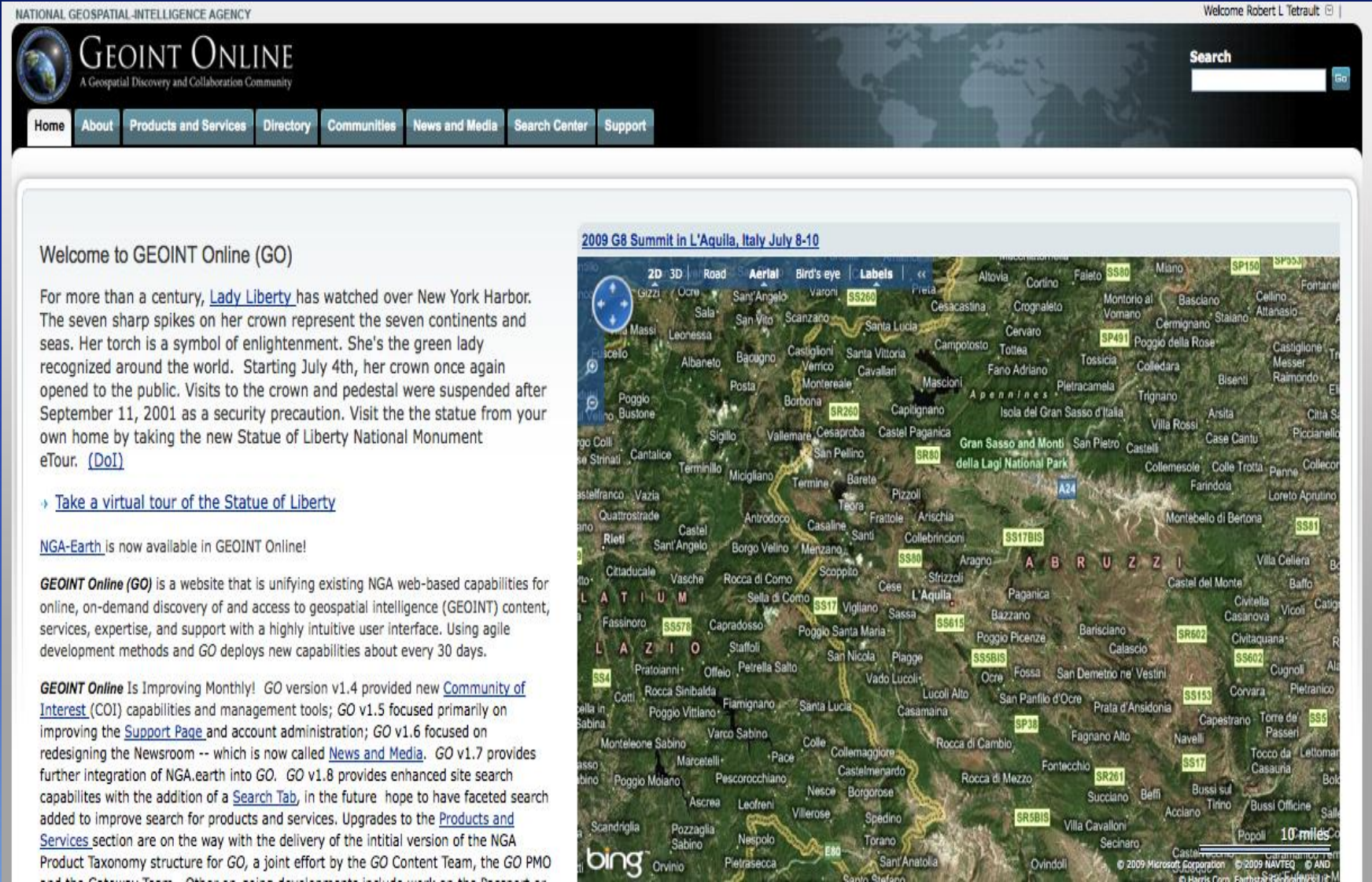
Inter-Agency Cooperation Benefits

- Improved efficiency and effectiveness.
- Shared burden of data collection and leveraged expertise.
- *Improved understanding of each agencies needs and access to commercial geospatial capabilities they did not have.*

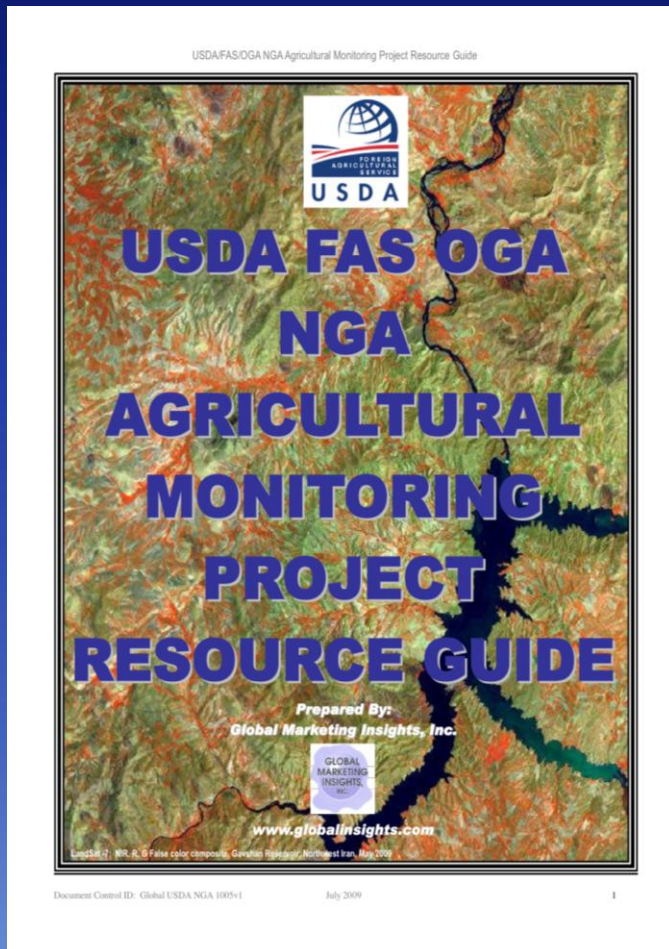


Inter-Agency Cooperation Benefits

- USDA has a Contract Vehicle all government sources may access for Commercial Imagery.
- USDA provides largest commercial Satellite Imagery Archive.
- USDA provides Ease of Access of Commercial Imagery for Projects.
- USDA Provides Commercial Data Analyst Expert Training.



Inter-Agency Cooperation Benefits On-Line Interactive Training Guides



Resource Guide

This resource guide contains methodologies and data explanations in order to better manage and improve the Operational Agricultural Monitoring and Land Use projects using MULTIPLE data sources. These guides are updated quarterly.

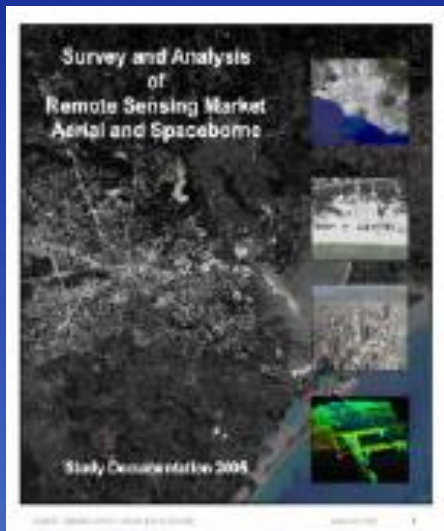
The guide is hosted at:

<http://www.globalinsights.com/sp4/USDANGAResourceGuide.pdf>

Inter-Agency Cooperation Benefits Access to Commercial Remote Sensing Research

Access to **COMMERCIAL DATA** Research Available Research – online at www.globalinsights.com

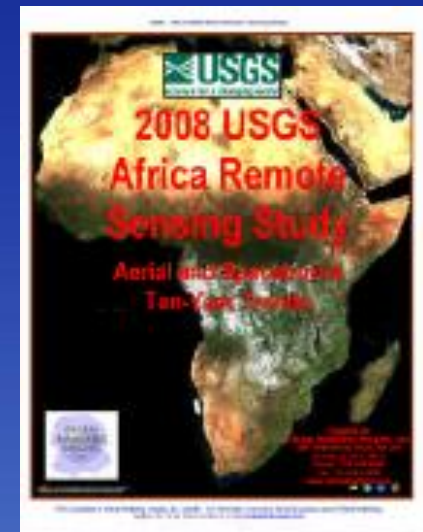
- Public Domain through contracts with NOAA and USGS



2005 NOAA WESTERN Study (US,
Canada and Europe)



2006 NOAA
ASIA Study



2008 USGS AFRICA Study 2010
South America in Process

- Customized Research for Federal Government Clients

- LiDAR, Aerial, User based, etc.

Inter-Agency Cooperation Benefits Increased Conference Exposure

GEOINT Symposium 2009

Booth #281

October 18-21, 2009

**Henry B. Gonzalez Convention Center
San Antonio, TX (booth and speakers and
social media)**

**The annual GEOINT Symposium, hosted by the
United States Geospatial Intelligence
Foundation (USGIF), is the Nation's Premier
Intelligence Event. Last year, more than
3,300 attendees came to the Global Booth to
learn more about working with the USDA FAS
and NGA.**



(L-R) Tom St. Clair, USDA FAS, Conference Attendee,
Sherry Loy, Global Marketing Insights, Inc., Robert
Tetrault, USDA FAS



Inter-Agency Cooperation Benefits Summit Partners



Global Food Security Summit

April 22, 2009

Ronald Reagan Convention Center

Washington, DC (speakers and social media and host) representing:

- NGA
- USDA
- Pentagon
- NASA
- The State Department



(L-R) Carl Stuekerjuergen, Director, NGA eGEOINT, Dr. Bradley Doorn, Director, USDA FAS OGA, Dr. Stanley Wood, Research Fellow, CGIAR, Gary Eilerts, Program Manager, USAID FEWS-NET

Inter-Agency Cooperation Benefits Global Social Media Exposure

USGIF Facebook Fan Page



United States Geospatial Intelligence Foundation (USGIF)
Global

Basic Info
Name: United States Geospatial Intelligence Foundation (USGIF)
Category: Organizations - Non-Profit Organizations
Description: The United States Geospatial Intelligence Foundation (USGIF) is the only organization dedicated to promoting the geospatial intelligence tradecraft and building a stronger community of interest across industry, academia, government, professional organizations and individual stakeholders.
As a not-for-profit educational foundation, USGIF strives to bring together the community at-large and support life-long learning that will ensure a robust cadre of professionals and a healthy tradecraft now and in the future.
Join us as we pursue our mission.

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Email: aimce.correnti@usgif.org
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Office: USGIF
Location: 2325 Dulles Corner Boulevard, Suite 450

Recent News
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Members
Displaying 8 of 188 members [See All](#)

Catherine Ayers, Ray Atkinson, Geospatial Ita, Rod Sheppard, Daniel F. Bassill, Gis Elshayal Smart Gis, Amber Topoleski, Rick Steffers

The Wall

Group Type
This is an open group. Anyone can join and invite others to join.

Officers
Aimee McGranahan Correnti (Washington, DC)
Vice President of Operations

Admins
Lindsey Christine Dunn (George Mason)
Jordan Fuhr (Washington, DC)
Matthew Langan (Washington, DC)
Carrie Layfield Drake (Kentucky)
Aimee McGranahan Correnti (Washington, DC) (creator)

Events
1 upcoming event [See All](#)
GEOINT 2009 Symposium

Social Media connects millions of users through Radio Blog, FaceBook, Linked In, Twitter, etc. providing Project:

- Contact information
- Updates
- Events
- Discussion boards

USGIF Podcast-Live BLOG Radio



got geoint?

ABOUT GEOINT | AUTHORS | CONTACT | Blog updates by e-mail. | RSS COMMENTS | RSS ENTRIES

27 AUG 2009 **g** **USGIF MEMBER PODCAST: Global Marketing Insights Joins USDA FAS for Exclusive Podcast**

+ Added by USGIF | Category: GEO-Cast

GLOBAL MARKETING INSIGHTS, INC.

Following is an exclusive USGIF member podcast with Dr. Shawana Johnson, President of Global Marketing Insights. Dr. Johnson is joined by Robert Tietraut of USDA FAS, and both discuss, in detail, their collaborative efforts and what they will be showcasing at GEOINT 2009 are doing for USDA FAS.

blogtalkradio
gotgeoint? PODCAST: Global Marketing Insights
00:00

Tags: Dr. Shawana Johnson, GEOINT, GEOINT 2009, geospatial intelligence, Global Marketing Insights, United States Geospatial Intelligence Foundation, USDA, USDA FAS, USGIF

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Inter-Agency Cooperation Benefits Leads to Geospatial Application Growth

- Improved efficiency and effectiveness.
- Shared burden of data collection and leveraged expertise.
- Improved understanding of each agencies needs and access to commercial geospatial capabilities they did not have.
- Increased Project Funding and Continuation
- Expanded Project Discussions:
 - Cultural Land Changes
 - Data Mining
 - Multi-Sensor Fusion Techniques with High Computing Power Capabilities Pilot Projects



QUESTIONS???



Thank You

For more information:

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